

Entry Test Scheme of Studies

NMDCAT SUNDAY SESSION 2021

DATE	DAY	Lecture #	Test #	DISCUSS ON	NAME OF TOPICS (According to UHS)			
					BIOLOGY	CHEMISTRY	ENGLISH	PHYSICS
14-Feb-21	Day 1				ORIENTATION OF SUBJECT			
21-Feb-21	Day 2	Lecture # 1			Homeostasis ➤ Mechanism of Homeostasis ● Receptors ● Control center ● Effectors ● Positive feedback ● Negative feedback ➤ Various nitrogenous compounds excreted during the process of excretion. ➤ Excretory System of Human ➤ Structure and Function of Kidney ➤ Thermoregulation in Human	Book - II (Organic Chemistry)	Subject Verb Agreement	Unit # 6 (a) Electrostatics Learning Outcomes: Coulomb's Law, Electric Field Strength, Electric Potential & Electric field as Potential Gradient, Electric field lines, Electric field intensity due to an infinite sheet of charge and between two oppositely charged parallel plates
28-Feb-21	Day 3		Test # 1	Test # 1		1. Fundamental Principles of Organic Chemistry: COURSE CONTENT ➤ Classification of organic compound ➤ Isomerism Learning Outcomes ➤ Define organic chemistry and organic compounds. ➤ Classify organic compounds on structural basis. ➤ Explain that organic compounds are also synthesized in the laboratory. ➤ Define functional group. ➤ Explain isomerism and its types.	Subject Verb Agreement	
7-Mar-21	Day 4		Test # 2	Test # 2				
14-Mar-21	Day 5	Lecture # 2				Chemistry of Hydrocarbons ➤ Open chain and closed chain hydrocarbons ➤ Nomenclature of alkanes, alkenes and alkynes ➤ Benzene: Properties, structure, modern representation, reactions, resonance method, electrophilic substitution, ➤ The molecular orbital treatment of benzene. Learning Outcomes ➤ Classify hydrocarbons as aliphatic and aromatic. ➤ Describe nomenclature of alkanes. ➤ Define free radical initiation, propagation and termination. ➤ Describe the mechanism of free radical substitution in alkanes exemplified by methane and ethane	Sentence Completion	

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21-Mar-21	Day 6		Test # 3	Test # 3	Coordination and control/ Nervous ➤ Nervous System of Man ▪ Nerve Impulse ▪ Steps involved in nervous coordination ▪ Neurons (Structure and Types) ● Transmission of Action Potential between Cells – Synapse ● Electrical synapses ● Chemical synapses ● Transmission of nerve impulse across synapse	methane and ethane. ➤ Explain the IUPAC nomenclature of alkenes. ➤ Explain the shape of ethene molecule in terms of sigma and pi C-C bonds. ➤ Describe the structure and reactivity of alkenes as exemplified by ethene. ➤ Define and explain with suitable examples the terms isomerism and structural isomerism. ➤ Explain dehydration of alcohols and dehydrohalogenation of RX for the preparation of ethene. ➤ Describe the chemistry of alkenes by the following reactions of ethene: 19 Hydrogenation, hydrohalogenation, hydration, halogenation, halohydration, polymerization. ➤ Explain the shape of the benzene molecule (molecular orbital treatment). ➤ Define resonance, resonance energy and relative stability. ➤ Compare the reactivity of benzene with alkanes and alkenes. ➤ Describe addition reactions of benzene and methylbenzene. ➤ Describe the mechanism of electrophilic substitution in benzene. ➤ Discuss chemistry of benzene and methyl benzene by nitration, sulphonation, halogenation, Friedal Craft’s alkylation and acylation. ➤ Apply the knowledge of positions of substituents in the electrophilic substitution of benzene. ➤ Use the IUPAC naming system for alkynes. ➤ Compare the reactivity of alkynes with alkanes, alkenes and arenes. ➤ Describe the preparation of alkynes using elimination reactions. ➤ Describe acidity of alkynes. ➤ Discuss chemistry of alkynes by hydrogenation, hydrohalogenation, and hydration. ➤ Describe and differentiate between substitution and addition reactions.	Sentence Completion + Spelling Errors	Unit # 6 (b) Electrostatics Learning Outcomes: Capacitor, Capacitance of a capacitor and its unit, Capacitance of a parallel plate capacitor, Energy Stored in a Capacitor, Charging and Discharging a Capacitor, Polarization of dielectric of a capacitor.
28-Mar-21	Day 7		Test # 4	Test # 4				
4-Apr-21	Day 8	Lecture # 3			Coordination and control Chemical coordination + Reproduction Chemical coordination ➤ Hormones- The chemical messengers ➤ Endocrine glands ➤ Feedback Mechanism • Positive feedback Mechanism • Negative feedback Mechanism Reproduction ➤ Menstrual cycle ➤ Sexually Transmitted Diseases- AIDS	Alkyl Halides ➤ Classification of alkyl halides ➤ Nomenclature ➤ Reactions ➤ Mechanism of nucleophilic substitution reaction SN1, SN2, E1 and E2 reaction Learning Outcomes ➤ Name alkyl halides using IUPAC system. ➤ Discuss the structure and reactivity of RX. ➤ Describe the mechanism and types of nucleophilic substitution reactions. ➤ Describe the mechanism and types of elimination reactions.	Vocabulary Tools + Vocabulary (1 - 40) + Homophone (A - D) + Spelling Errors	Unit # 7 (a) Current Electricity Learning outcomes: OHM's Law, Electrical resistance, Specific resistance of resistivity, Effect of temperature on resistance, Temperature coefficient of resistance, Variation of resistivity with temperature, Concept of steady current.
11-Apr-21	Day 9		Test # 5	Test # 5		Vocabulary (1 - 40) + Homophone (A - D) + Spelling Errors		
18-Apr-21	Day 10		Test # 6	Test # 6				

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25-Apr-21	Day 11	Lecture # 4			Support and Movement + Evolution Support and Movement ➤ Muscles ➤ Types of muscles • Skeletal Muscles • Cardiac Muscles • Smooth Muscles ➤ Structure of Skeletal Muscles Evolution ➤ Concepts of Evolution ➤ Inheritance of acquired characteristics ➤ Darwinism • Darwin's voyage of HMS beagle and his observations • Darwin's theory evolution ➤ Neo-Darwinism • Evidence of evolution	Alcohols and Phenols ➤ Alcohols: ☐ Classification: Primary, secondary and tertiary alcohols ☐ Nomenclature ☐ Reactivity ➤ Phenols: ☐ Physical properties ☐ Nomenclature ☐ Acidity ☐ Reactivity Learning Outcomes ➤ Explain nomenclature and structure of alcohols. ➤ Explain the reactivity of alcohols. ➤ Describe the chemistry of alcohols by preparation of ethers and esters ➤ Explain the nomenclature and structure of phenols. ➤ Discuss the reactivity of phenol and their chemistry by electrophilic aromatic substitution. ➤ Differentiate between an alcohol and phenol.	Preposition - General	Unit # 7 (b) Current Electricity Learning outcomes: Internal resistance of a supply, Electric power, Unit of electric power, Kilowatt-hours, Kirchhoff's Rule, Kirchhoff's current law, Kirchhoff's voltage law, Procedure of Kirchhoff's law for Problem solution, Potentiometer
2-May-21	Day 12		Test # 7	Test # 7			Preposition - General	
9-May-21	Day 13		Test # 8	Test # 8				